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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/795,781	03/08/2004	Shengli Lin	884.C60US1	1596

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EXAMINER

NGUYEN, HOANG V

ART UNIT PAPER NUMBER

2821

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

**Office Action Summary**

Application No.

10/795,781

Applicant(s)

LIN, SHENGLI ET AL

Examiner

Hoang V. Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 26-31 is/are allowed.
- 6) ☒ Claim(s) 1,4,11,12,15,16,19 and 23 is/are rejected.
- 7) ☒ Claim(s) 2,3,5-10,13,14,17,18,20-22,24 and 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| <p>1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br/>Paper No(s)/Mail Date ____.</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)<br/>Paper No(s)/Mail Date. ____.</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: ____.</p> |
|--|--|

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4, 12, 15, 16, 19 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Pett et al (US 5,382,959).

Regarding claim 1, Pett (Figure 5) discloses an antenna comprising a first conductive layer comprising one or more parasitic patches M', N' and O'; a second conductive layer comprising a plurality of radiating patches M, N and O; and a third conductive layer comprising a ground patch 62, wherein the first, second and third conductive layers are separated by first and second substrate layers 76 and 64.

Regarding claim 4, as applied to claim 1, Figure 5 of Pett shows that the one or more parasitic patches are electrically isolated from the second and third conductive layers.

Regarding claim 12, as applied to claim 1, Pett (col 12, lines 1-14) teaches that the substrate layers comprise an inorganic substrate material.

Regarding claim 15, as applied to claim 1, it is well known in the art that the parasitic patches, the radiating patches and the ground patch are conductive and comprise at least one of gold, copper, tungsten, silver, brass, aluminum or steel, including alloys thereof.

Regarding claim 16, Pett (Figure 5) discloses a multi-layer, multi-band antenna comprising a first conductive layer comprising one or more parasitic patches M', N' and O'; a

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second conductive layer comprising a plurality of radiating patches M, N and O; a third conductive layer comprising a ground patch 62, a first substrate layer 76 separating the first and second conductive layers; and the second substrate layer 64 separating the second and third conductive layers, wherein the one or more parasitic patches are electrically isolated from the second and third conductive layers, and wherein the plurality of patches are electrically coupled and have a single feeding point 72 to electrically couple the radiating patches to a feed conductor.

Regarding claim 19, Pett (Figure 5) discloses a multi-layer circuit board comprising one or more parasitic patches M', N' and O' disposed on a first substrate layer 76; a plurality of radiating patches M, N and O disposed on a second substrate layer 64; and a ground patch 62 disposed on the second substrate layer on a side opposite the radiating patches, wherein the one or more parasitic patches are electrically isolated from the radiating patches and the ground patch, and wherein the plurality of radiating patches are electrically coupled and have a single feeding point 72 to electrically couple the radiating patches to a feed conductor.

Regarding claim 23, Pett (Figure 5) discloses a system comprising an antenna having a first conductive layer comprising one or more parasitic patches M', N' and O'; a second conductive layer comprising a plurality of radiating patches M, N and O; and a third conductive layer comprising a ground patch 62, wherein the first, second and third conductive layers are separated by first and second substrate layers 76 and 64. It would be inherent that the system would also include a transceiver connected to the antenna in order to render the system operational with respect to transmit or receive electromagnetic signals.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pett et al in view of Fukuura et al (US 6,556,169 B1).

Pett discloses an antenna comprising a first conductive layer comprising one or more parasitic patches; a second conductive layer comprising a plurality of radiating patches; and a third conductive layer comprising a ground patch, wherein the first, second and third conductive layers are separated by first and second substrate layers. Pett does not explicitly mention that the substrate layers comprise an organic substrate material. Fukuura (Figure 1 and col 7, lines 44-48) teaches a patch antenna system comprising substrate layers made from organic material. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the Pett antenna with the substrate layers made from an organic material, as taught by Fukuura, doing so would alter the radiation characteristics of the Pett antenna in order to suite a desired application.

***Allowable Subject Matter***

5. Claims 2, 3, 5-10, 13, 14, 17, 18, 20-22, 24 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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6. Claims 26-31 are allowed.

7. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 2, Pett discloses an antenna comprising a first conductive layer comprising one or more parasitic patches; a second conductive layer comprising a plurality of radiating patches; and a third conductive layer comprising a ground patch, wherein the first, second and third conductive layers are separated by first and second substrate layers. Pett, however, fails to specifically teach that a first radiating patch having dimensions selected to radiate signals within a first frequency spectrum; and the second radiating patches having dimensions selected to radiate signals within a second frequency spectrum.

Claims 3, 5-9, 13 and 14 would have been found allowable for depending on claim 2.

Regarding claim 10, Pett fails to further teach, among other features, that the third conductive layer comprises one or more slots within the ground patch.

Regarding claims 17, 20 and 24, Pett fails to further teach, among other features, that the plurality of radiating patches have one or more grounding points electrically coupling the radiating patches to the third conductive layer, and wherein the third conductive layer has one or more slots therein.

Claims 21 and 22 would have been found allowable for depending on claim 20.

Claims 25 would have been found allowable for depending on claim 24.

Regarding claim 18, Pett fails to further teach, among other features, that the first radiating patch having dimensions selected to radiate signals within a first frequency spectrum; and the second radiating patches having dimensions selected to radiate signals within a second frequency spectrum.

Regarding claim 26, Pett discloses an antenna system comprising a first conductive layer comprising one or more parasitic patches; a second conductive layer comprising a plurality of radiating patches; and a third conductive layer comprising a ground patch, wherein the first, second and third conductive layers are separated by first and second substrate layers. Pett, however, fails to further teach a transceiver receiving or transmitting orthogonal frequency division multiplexed signals over a high-throughput communication channel, wherein the high-throughput communication channel comprises a combination of either one or more sub-channels or one or more spatial channels associated with one or more sub-channels, and wherein each of the at least some of the antennas is to communicate within one of the sub-channels or within one of the spatial channels.

Claims 27-31 are allowed for depending on claim 26.

### *Conclusion*

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- US 2002/0000937 A1 discloses an antenna apparatus comprising a parasitic patch, a radiating patch and a ground patch.
- Patent 6,856,300 B2 discloses an antenna system comprising a plurality of parasitic patches, a plurality of radiating patches and a ground patch.
- Patent 6,320,547 B1 discloses an antenna system comprising a plurality of parasitic patches, a plurality of radiating patches and a ground patch.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang V. Nguyen whose telephone number is (571) 272-1825.

The examiner can normally be reached on Mondays-Fridays from 9:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoang Nguyen can be reached on (571) 272-1825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hvn  
4/22/05



**HOANG V. NGUYEN**  
**PRIMARY EXAMINER**